



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,107	09/12/2003	Harry Bims	1875.7300003	6489
26111 7590 11/10/2008 STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				
EXAMINER AJAYI, JOEL				
ART UNIT 2617		PAPER NUMBER		
MAIL DATE 11/10/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/661,107

Applicant(s)

BIMS, HARRY

Examiner

JOEL AJAYI

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-17,19-21,23-31 and 33-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-17,19-21,23-31 and 33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to Applicant's amendment filed on July 18, 2008. **Claims 1, 2, 4-17, 19-21, 23-31, 33-35** are still pending in the present application. **This action is made FINAL.**

Response to Arguments

Applicant's arguments filed July 18, 2008 have been fully considered but they are not persuasive.

The argument features that the first and second packets are transmitted wirelessly to the first and second mobile stations at different times respectively when it is determined that transmitting the first and second packets will create interference.

The examiner respectfully disagrees with the applicant's statement and asserts that Houggy et al. discloses that to ensure reliable communications/avoid interference (a determination is therefore made) the repeaters transmit packets in a defined time slot (column 3, lines 2-4; column 31, lines 24-27).

In view of the above, the rejections using Houggy is maintained as repeated below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 7, 8, 14, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hougy et al. (U.S. Patent Number: 5,838,226)** in view of **Cohn et al. (U.S. Patent Number: 4,363,129)**.

Consider **claim 1**; Hougy discloses a method comprising: configuring a plurality of repeaters to coordinate transmissions of data packets and thereby function as an access with respect to first and second devices that are wirelessly communicatively coupled to the plurality of repeaters; determining within the plurality of repeaters whether wirelessly transmitting first and second packets to the first and second devices respectively will create interference between the first and second packets; and wirelessly transmitting the first and second packets to the first and second mobile stations respectively at different times (defined/different time slots) when it is

determined that transmitting the first and second packets will create interference (column 2, line 63 - column 3, line 9).

Hougy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Hougy in order to use same frequency repeaters.

Consider **claim 33**; Hougy discloses an apparatus comprising:
Means for configuring a plurality of repeaters to coordinate transmissions of data packets and thereby function as an access point with respect to first and second devices that are wirelessly communicatively coupled to the plurality of repeaters; means for determining within the plurality of repeaters whether wirelessly transmitting first and second packets to the first and second devices respectively will create interference between the first and second packets; and means for wirelessly transmitting the first and second packets to the first and second mobile stations respectively at different times (defined/different time slots) when it is determined that transmitting the first and second packets will create interference (column 2, line 63 - column 3, line 9).

Hougy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Houggy in order to use same frequency repeaters.

Consider **claim 2**; Cohn discloses operating the plurality of repeaters as a communication channel with a wireless communication protocol (column 1, lines 30-37).

Consider **claim 7**; Houggy discloses coordinately scheduling at the plurality of repeaters transmissions of the first packet and the second packet to avoid interference that would prevent one or both of the transmissions from being received by the first and second devices (column 2, line 63 - column 3, line 9).

Consider **claim 8**; Houggy discloses determining whether the first and second packets are to be transmitted substantially simultaneously to the first and second mobile stations; and transmitting the first and second packets to the first and second mobile stations at different time slots to avoid the interference, if the first and second packets are selected for substantially simultaneously transmission (column 2, line 63 - column 3, line 9).

Consider **claim 14**; Houggy discloses performing address translation on the first and second packets to determine respective Ethernet MAC addresses based on respective destination IP addresses of the first and second packets (this takes place within the network); identifying which of the plurality of repeaters is closest to the first and second mobile stations having the respective Ethernet MAC address; determining whether interference will occur between the transmission that would prevent completion of the transmissions; and scheduling the

transmissions of the first and second packets to avoid the interference if interference would occur between the transmissions (column 2, line 63 - column 3, line 9; column 9, lines 37-46; column 30, lines 27-43).

Claims 4-6, 15-17, 19-21, 23-31, 34, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hougy et al. (U.S. Patent Number: 5,838,226)** in view of **Cohn et al. (U.S. Patent Number: 4,363,129)**, and further in view of **Gulliford et al. (U.S. Patent Number: 5,384,776)**.

Consider **claim 15**; Hougy discloses a method comprising:

receiving first and second data packets designated for transmission to a first device and a second device respectively via a plurality of repeaters transmitting on a substantially identical communication frequency; detecting whether overlapping transmissions of the first and second packets will result in interference that would prevent completion of the transmissions; and scheduling transmissions (defined/different time slots) of the first and second packets via the plurality of repeaters to avoid the interference if it is determined that overlapping transmissions of the first and second packets will result in interference that would prevent completion of the transmission (column 2, line 63 - column 3, line 9).

Hougy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Houggy in order to use same frequency repeaters.

Houggy and Cohn fail to disclose a switch for receiving packets for transmission to mobile stations.

In the same field of endeavor Gulliford discloses a switch for receiving packets for transmission to mobile stations (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Houggy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claim 20**; Houggy discloses a method comprising:

Receiving, at a switch, a packet destined to a device; determining, whether immediately transmitting the packet to the device will cause an interference with other communications destined to the mobile station; and transmitting the packet to a communication device, wherein the packet is forwarded wirelessly to the mobile station when it is determined that transmitting the packet will not cause interference (defined/different time slots); wherein the communication device and other communication devices coordinate transmissions of data packets, thereby functioning as an access point with respect to the device (column 2, line 63 - column 3, line 9).

Houggy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Hougy in order to use same frequency repeaters.

Hougy and Cohn fail to disclose a switch for receiving packets for transmission to mobile stations.

In the same field of endeavor Gulliford discloses a switch for receiving packets for transmission to mobile stations (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Hougy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claim 29**; Hougy discloses a system comprising:

A plurality of communication devices (repeaters) communicating wirelessly with one or more devices, wherein the plurality of communication devices coordinate transmissions of data packet to function as an access point with respect to the one or more mobile stations, the coordinating including determining whether immediately transmitting the packets to the one or more devices via the plurality of communication device will cause an interference with other communications to the one or more mobile stations (defined/different time slots) (column 2, line 63 - column 3, line 9).

Houggy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Houggy in order to use same frequency repeaters.

Houggy and Cohn fail to disclose a switch for receiving packets for transmission to mobile stations.

In the same field of endeavor Gulliford discloses a switch for receiving packets for transmission to mobile stations (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Houggy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claim 34**; Houggy discloses a method comprising:

Means for receiving first and second data packets designated for transmission to a first device and a second device respectively via a plurality of repeaters transmitting on a substantially identical communication frequency; means for detecting whether overlapping transmissions of the first and second packets will result in interference that would prevent completion of the transmissions; and means for scheduling transmissions (defined/different time slots) of the first and second packets via the plurality of repeaters to avoid the interference if it is

determined that overlapping transmissions of the first and second packets will result in interference that would prevent completion of the transmission (column 2, line 63 - column 3, line 9).

Houggy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Houggy in order to use same frequency repeaters.

Houggy and Cohn fail to disclose a switch for receiving packets for transmission to mobile stations.

In the same field of endeavor Gulliford discloses a switch for receiving packets for transmission to mobile stations (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Houggy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claim 35**; Houggy discloses a method comprising:

Means for receiving, at a switch, a packet destined to a device; means for determining, whether immediately transmitting the packet to the device will cause an interference with other communications destined to the mobile station; and means for transmitting the packet to a

communication device, wherein the packet is forwarded wirelessly to the mobile station when it is determined that transmitting the packet will not cause interference (defined/different time slots); wherein the communication device and other communication devices coordinate transmissions of data packets, thereby functioning as an access point with respect to the device (column 2, line 63 - column 3, line 9).

Hougy fails to disclose a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets.

In the same field of endeavor Cohn discloses a plurality of repeaters operating at an identical operating frequency; and mobile stations to receive the packets (column 1, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Cohn into the method of Hougy in order to use same frequency repeaters.

Hougy and Cohn fail to disclose a switch for receiving packets for transmission to mobile stations.

In the same field of endeavor Gulliford discloses a switch for receiving packets for transmission to mobile stations (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Hougy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claim 4**; Hougy and Cohn disclose transmissions of the first packet and the second packet to avoid interference that would prevent one or both of the transmissions from

being received by the first and second mobile stations (Hougy, column 2, line 63 - column 3, line 9).

Hougy and Cohn fail to disclose scheduling at a switch coupled to the plurality of repeaters.

In the same field of endeavor Gulliford discloses scheduling at a switch coupled to the plurality of repeaters (column 8, lines 8-25).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gulliford into the method of Hougy and Cohn in order to provide a switch that routes commands and signals between RF transmitter sites of a multi-site radio repeater system.

Consider **claims 5, 16, 25**; Hougy discloses detecting whether concurrent transmission of the first and second packets will cause interference prior to performing the scheduling; and transmitting the first and second packets to the first and second mobile stations without performing the scheduling, if (the if statement creates several possibilities) overlapping transmissions of the first and second packets will not cause interference (column 2, line 63 - column 3, line 9).

Consider **claim 6**; Hougy discloses that if substantially concurrent transmission of the first and second packets cause interference, the method further comprises transmitting the first and second packets to the first and second devices respectively according to the schedule (column 2, line 63 - column 3, line 9).

Consider **claims 17, 21, 31**; Cohn discloses operating the plurality of repeaters as a communication channel with a wireless communication protocol (column 1, lines 30-37).

Consider **claims 19, 27**; Houggy discloses performing address translation on the first and second packets to determine respective Ethernet MAC addresses based on respective destination IP addresses (this takes place within the network); identifying which of the plurality of repeaters is closest to the first and second mobile stations having the respective Ethernet Mac address; determining whether there is an interference between overlapping wireless communications of the identified repeater and other repeaters in the plurality of repeaters; and performing the scheduling if there is an interference (column 2, line 63 - column 3, line 9; column 9, lines 37-46; column 30, lines 27-43).

Consider **claim 23**; Houggy discloses delaying the transmission of the packets to the mobile station if it is determined that an interference would occur (column 2, line 63 - column 3, line 9).

Consider **claim 24**; Houggy discloses scheduling the transmission of the packet at an alternative time slot where no other communications destined to the mobile station are occurring if it is determined that no interference would otherwise occur (column 2, line 63 - column 3, line 9).

Consider **claim 26**; Cohn discloses determining a communication device closest to the mobile station; and scheduling based in part on a location of the closest communication device, the transmission of the packet to the mobile station such that there are no other communications occurring to the mobile station (column 1, lines 30-41).

Consider **claim 28**; Houggy and Gulliford disclose that the address translation is performed via a table (column 2, line 63 - column 3, line 9; column 9, lines 37-46; column 30, lines 27-43), stored within the switch (column 8, lines 8-25).

Consider **claim 30**; Gulliford discloses that the switch manages communications between the plurality of communication devices and the one or more mobile stations (column 8, lines 8-25).

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hougy et al. (U.S. Patent Number: 5,838,226)** in view of **Cohn et al. (U.S. Patent Number: 4,363,129)**, and further in view of **Shanley (U.S. Patent Number: 5,093,927)**.

Consider **claims 9-11**; Hougy and Cohn fail to disclose maintaining in a database, information regarding whether communications of one of the plurality of repeaters will interfere with another of the plurality of repeaters.

In the same field of endeavor Shanley discloses maintaining in a database, information regarding whether communications of one of the plurality of repeaters will interfere with another of the plurality of repeaters (column 3, lines 38-63).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Shanley into the method of Hougy and Cohn in order to monitor record interference of the communication resources.

Consider **claims 12 and 13**; Hougy and Cohn disclose mobile stations and a corresponding plurality of repeaters that last received transmissions from the mobile stations (Hougy, column 2, line 63 - column 3, line 9; Cohn, column 1, lines 30-34).

Hougy and Cohn fail to disclose a second database.

In the same field of endeavor Shanley discloses a second database (mass storage) (column 3, lines 38-63).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Shanley into the method of Houggy and Cohn in order to monitor record interference of the communication resources.

Conclusion

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joel Ajayi whose telephone number is (571) 270-1091. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm and Friday 7:30am to 4:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Joel Ajayi

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617